Environmental Assessment Checklist

Project Name: Horn Mountain Limited Access Timber Sale
Proposed Implementation Date: June 2018
Proponent: Bozeman Unit, Central Land Office, Montana DNRC
County: Madison

Type and Purpose of Action

Description of Proposed Action:

The Bozeman Unit of the Montana Department of Natural Resources and Conservation (DNRC) is proposing the Horn Mountain Limited Access Timber Sale. The project is located 21 air miles northwest of West Yellowstone, MT (refer to Attachments vicinity map A-**1** and project map A-**2**) and includes the following sections:

Beneficiary	Legal Description	Total Acres	Treated Acres
Common Schools	**W2NW4_NW4SW4 Section 28, T12S, R02E**	**120**	**2.3**
Common Schools	**NE4_N2SE4_S2SW4 Section 29, T12S, R02E**	**320**	**51.7**

Objectives of the project include:

- The primary objective would be to generate revenue to the trust beneficiary and capture value from dead and dying timber while improving the health, vigor and productivity of the forest stands.
- Promote the desired future condition of this stand, which is a Douglas-fir cover type.
- Enhance aspen stands.

Proposed activities include:

Action	Quantity
Proposed Harvest Activities	# Acres
Clearcut	
Seed Tree	18
Shelterwood	18
Selection	
Commercial Thinning	
Salvage	18

Action	Quantity
Total Treatment Acres	**54**
Proposed Forest Improvement Treatment	# Acres
Pre-commercial Thinning	
Planting	
Proposed Road Activities	# Miles
New permanent road construction	
New temporary road construction	0.2
Road maintenance	1.0
Road reconstruction	0.8
Road abandoned	
Road reclaimed	
Other Activities	

Duration of Activities:	5 months
Implementation Period:	June 2018 thru September 2018

The lands involved in this proposed project are held in trust by the State of Montana. (Enabling Act of February 22, 1889; 1972 Montana Constitution, Article X, Section 11). The Board of Land Commissioners and the DNRC are required by law to administer these trust lands to produce the largest measure of reasonable and legitimate return over the long run for the beneficiary institutions (Section 77-1-202, MCA).

The DNRC would manage lands involved in this project in accordance with:

- The State Forest Land Management Plan (DNRC 1996),
- Administrative Rules for Forest Management (ARM 36.11.401 through 471),
- The Montana DNRC Forested State Trust Lands Habitat Conservation Plan (HCP) (DNRC 2010)
- and all other applicable state and federal laws.

Project Development

SCOPING:

- DATE:
  - May 17 - 22, 2017
- PUBLIC SCOPED:
  - The scoping notice was posted on the DNRC Website: http://dnrc.mt.gov/public-interest/public-notices
  - A legal notification was placed in the *Bozeman Chronicle* and *The Madisonian*.
  - Adjacent landowners, State lessee, interested parties and the statewide scoping list.
- AGENCIES SCOPED:
  - MT FWP
  - USFS, Madison Ranger District

  - Madison County Commissioners/ Montana Association of Counties
  - MT DNRC
  - Montana Tribal Nations
- COMMENTS RECEIVED:
  - How many: One comment was received from the CSKT Preservation Office. Concerns: None were expressed and a recommendation that the project proceed.
  - Results (how were concerns addressed): Where specific resource concerns were identified by the Project leader or DNRC specialists, those resources affected were analyzed and the effects are disclosed in the resources analysis within this document.

DNRC specialists were consulted, including: Patrick Rennie, Archaeologist; Jeff Schmalenberg, Resource Management and Planning Section; Ross Baty, Wildlife Biologist; Jessica Thiel, Forest Management Planner.

Internal and external issues and concerns were incorporated into project planning and design and will be implemented in associated contracts.

OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:

- **United States Fish & Wildlife Service -** DNRC is managing the habitats of threatened and endangered species on this project by implementing the Montana DNRC Forested Trust Lands HCP and the associated Incidental Take Permit that was issued by the United States Fish & Wildlife Service (USFWS) in February of 2012 under Section 10 of the Endangered Species Act. The HCP identifies specific conservation strategies for managing the habitats of grizzly bear, Canada lynx, and three fish species: bull trout, westslope cutthroat trout, and Columbia redband trout. This project complies with the HCP. The HCP can be found at http://dnrc.mt.gov/divisions/trust/forest-management/hcp.

- **Montana Department of Environmental Quality (DEQ) -** DNRC is classified as a major open burner by DEQ and is issued a permit from DEQ to conduct burning activities on state lands managed by DNRC. As a major open-burning permit holder, DNRC agrees to comply with the limitations and conditions of the permit.

- **Montana/Idaho Airshed Group -** The DNRC is a member of the Montana/Idaho Airshed Group which was formed to minimize or prevent smoke impacts while using fire to accomplish land management objectives and/or fuel hazard reduction (Montana/Idaho Airshed Group 2006). The Group determines the delineation of airsheds and impact zones throughout Idaho and Montana. Airsheds describe those geographical areas that have similar atmospheric conditions, while impact zones describe any area in Montana or Idaho that the Group deems smoke sensitive and/or having an existing air quality problem (Montana/Idaho Airshed Group 2006). As a member of the Airshed Group, DNRC agrees to burn only on days approved for good smoke dispersion as determined by the Smoke Management Unit.

ALTERNATIVES CONSIDERED:

No-Action Alternative: Under the no-action alternative, no harvest would occur, no new road would be constructed and timber management for the proposed project area would be deferred indefinitely. An opportunity to access landlocked State land and generate revenue for the trust would be lost.

Action Alternative: Under the action alternative, a limited opportunity to access landlocked State land to harvest ~250 MBF of overstocked Douglas-fir sawtimber with insect infestations from 54 acres would occur. The proposed project would construct ~1250 feet of minimum standard new restricted road and reconstruct ~4300 feet of existing road to access the harvest area. Group shelterwood and seed tree treatments, utilizing ground based systems, would be utilized in the Douglas-fir stands. Aspen stands would have all conifer sawtimber removed out to 75 feet from the aspen clone. The remaining sub-merchantable conifer within the aspen stands would be felled and lopped after the timber harvest if funding and personnel are available. Treatments would generate the revenue to the trust and capture value from dead and dying timber while improving the health, vigor, and productivity of the forest stands. At project closure, skid trails and new road on the State land would be physically closed.

Impacts on the Physical Environment

Evaluation of the impacts on the No-Action and Action Alternatives including **direct, secondary, and cumulative** impacts on the Physical Environment.

VEGETATION:

Vegetation Existing Conditions:

The stand is located near the mid reaches of Horn Creek at the very southeastern edge of the Gravelly Range. The surrounding landscape is scattered patches of timber and sagebrush/grasslands. The cover type is Douglas-fir and is also the desired future condition of the conifer stand. Douglas-fir is a moderately shade tolerant species and is the indicated climax species and vigorous seral for the respective habitat types. The stand is included in fire group six. The fire disturbance regime was likely low to moderate severity fires occurring at 40 to 45-year interval, maintaining mature stands in a more open condition with an occasional stand replacing fire occurring in denser, overstocked areas. The absence of fire, in combination with encroachment, has resulted in an overstocked and suppressed stand. These conditions have made the stand more susceptible to attack from insects and disease and created heavier fuel loadings than were historically present. Large healthy aspen stands are found along the northern and eastern edge of the of the Douglas fir stand. The Douglas fir is encroaching into the aspen and will eventually replace the majority of the aspen with Douglas fir. Some harvesting occurred ~50-75 years ago.

Spruce budworm damage is moderate to heavy. Douglas fir bark beetle has infested the southwest corner of the stand and would likely continue to spread as private timber stands to the south are heavily infested. Stands are exhibiting low vigor and poor growth due mainly to too many mature trees per acre competing for the same limited resources. Compounded by droughty conditions over the last decade and recurrent infestations of spruce budworm and Douglas fir bark beetle, trees are stressed and in poor health. Some larger relic trees are

scattered throughout the stands but there are not enough to meet the DNRC old growth minimum criteria. Age ranges from 120-175 years old, height 55-75 feet, average dbh 15" with an average BA of 185 sq. ft. Undergrowth is moderate to heavy and well represented and conifer regeneration is minimal.

Adjacent private lands to the south of the State parcels will be treating ~68 acres of similar timber cover type and utilizing similar harvest treatments in the spring/summer of 2018.

Vegetation	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Noxious Weeds	**x**				**x**				**x**				**N/A**	
Rare Plants	**x**				**x**				**x**				**N/A**	
Vegetative community			**x**				**x**				**x**		**No**	**1**
Old Growth	**x**				**x**				**x**				**N/A**	
Action														
Noxious Weeds		**x**				**x**				**x**			**Yes**	**2**
Rare Plants	**x**				**x**				**x**				**N/A**	
Vegetative community		**x**				**x**				**x**			**Yes**	**3**
Old Growth	**x**				**x**				**x**				**N/A**	

Comments:

1. Stands to the south are infested with Douglas fir bark beetle and would continue to infest the State parcels. Stand overstocking would continue to reduce vigor and growth and leave stand at a greater risk to insect and disease attack and heavier fuel loadings and fire.
2. Mechanical treatment would increase ground disturbance and increase the potential spread of noxious weeds. In time, native species would be expected to out compete the invasive species and return the area to more pre-harvest condition.
3. Treatments would remove ~50% (group shelterwood) and up to 75% (seed tree/salvage) of the sawtimber basal area, improving the health, vigor, and productivity of the stands. Douglas-fir leave trees would provide a seed source for regeneration and new timber stands in the long-term. Aspen stand treatments would remove all merchantable conifers within 50-75' of aspen colonies to reduce conifer encroachment and promote restoration of the aspen stands.

Vegetation Mitigations:

- All road and logging equipment would be power washed and inspected prior to being brought on site.
- Project area would be monitored for noxious weeds during and following harvest and a weed treatment plan would be developed and implemented should noxious weeds occur.
- All new roads would be reseeded with site adapted grass to reduce the threat of noxious weed spread. Grass seed disturbed sites (landings, slash piles, major skid trails) at the completion of the harvest unit. Seed mix used would be appropriate for the site.

- One large snag and snag recruit (≥21" dbh or next dbh class) per acre would be left where available. Cull live trees and cull snags would be retained where applicable. Sub-merchantable/non-merchantable trees and shrubs would be protected and retained where available. Retain visual screening cover in harvest units and riparian and wetland management zones. Emphasize the retention of downed logs of 15-inch diameter or larger where available. Retain live, healthy older trees and stand attributes suitable for old growth development where available and applicable.
- Compliance with Forestry Best Management Practices (BMP's), Streamside Management Zone (SMZ) laws and DNRC Forest Management Administrative Rules.

SOIL DISTURBANCE AND PRODUCTIVITY:

Soil Disturbance and Productivity Existing Conditions: Soils within the harvest unit are predominately very deep, channery sandy loam to a very stoney clay loam, well drained and formed in colluvium and till derived from schist, gneiss, and granite. Erosion, compaction and rutting are low to moderate but certain features, i.e., slope and low soil strength, could develop unfavorable operating conditions.

Soils outside the harvest unit, where existing road, proposed new construction and landings are located, are more of a fine loam. These soils tend to be less suitable for road activities due to low soil strength.

Overall, soils are moderately suited for haul roads and equipment operability. Soil productivity is moderate with low levels of woody debris. No areas of slope instability were observed within the project area during field review.

Soil Disturbance and Productivity	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Physical Disturbance (Compaction and Displacement)	**x**				**x**				**x**				**N/A**	
Erosion	**x**				**x**				**x**				**N/A**	
Nutrient Cycling	**x**				**x**				**x**				**N/A**	
Slope Stability	**x**				**x**				**x**				**N/A**	
Soil Productivity	**x**				**x**				**x**				**N/A**	
Action														
Physical Disturbance (Compaction and Displacement)			**x**				**x**			**x**			**Yes**	**1, 2**
Erosion			**x**				**x**			**x**			**Yes**	**1, 2**
Nutrient Cycling			**x**				**x**			**x**			**Yes**	**1, 2**
Slope Stability		**x**				**x**				**x**			**Yes**	**1, 2**
Soil Productivity		**x**				**x**				**x**			**Yes**	**1, 2**

Soil Comments:

1 & 2. Detrimental soil impacts resulting from compaction, displacement, and erosion would be expected on approximately 15% or less of the harvest unit and would be localized to primary skid trails and log landing sites. Project area nutrient pools are not expected to be affected if 5-10 tons of fine and coarse woody material is retained onsite for long-term soil organic matter supply and nutrient cycling. Woody material retention and managing operating periods in conjunction with limiting disturbance is expected to maintain long-term productivity.

Previous harvest within the project area is limited with less than 2 percent detrimental soil disturbance. For an impact to soil resources to be cumulative they must overlap at least twice in both time and space. Considering this constraint, the proposed action presents a low-level risk of cumulative effects to soil resources in the project area.

Soil Mitigations:

- Limit equipment operations to periods when soils are dry (less than 20% soil moisture), frozen or snow covered (12 inches packed or 18 inches unconsolidated) to minimize soil compaction, rutting, vegetative disturbance and maintain drainage features. Control erosion by installing adequate drainage on roads and skid trails.
- Retain all fine litter as feasible and 5-10 tons/acre of large woody debris >3" diameter including 1 large log (>15 inches dbh) per acre greater than 20 feet long as practicable.
- Minimize soil disturbance by general skid trail planning and limit sustained tractor skidding to slopes ≤50% throughout entire project. Limit scarification to 30-40% of the harvest area. Slash would be left in the harvest units where feasible, and distributed on skid trails upon completion of use, for nutrient cycling, to control erosion and to provide shade and moisture retention.
- The locations and spacing of skid trails and landings shall be designated and approved prior to operations and skid trails would not be spaced less than 40 feet apart.
- Install adequate road drainage to control erosion concurrent with harvest activities, road opening and new construction. Provide effective sediment filtration along drainage features near crossing sites. New construction and major skid trails on State lands would be closed with slash and debris and/or barriers, and adequate drainage provided. Existing road on State land would be closed to motorized traffic and have adequate drainage provided.
- At sale closure, grass seed roads, skid trails (where needed) and landings with an appropriate seed mixture.
- Compliance with Forestry Best Management Practices (BMP's), Streamside Management Zone (SMZ) laws and applicable DNRC Forest Management Administrative Rules.

WATER QUALITY AND QUANTITY:

Water Quality and Quantity Existing Conditions: No perennial, class I streams are present in project area. Horn Creek is an intermittent, class II stream and could have surface connectivity to downstream receiving waters. An unnamed intermittent, class III drainage is located within the State parcels and could have surface connectivity to Horn Creek. No streams are present within the harvest area.

Existing roads in the project area currently do not meet BMP's.

Water Quality & Quantity	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Water Quality	**X**				**X**				**X**					
Water Quantity	**X**				**X**				**X**					
Action														
Water Quality		**X**				**X**				**X**			**Yes**	**1**
Water Quantity	**X**				**X**				**X**				**Yes**	**2**

Comments:

1. The primary concerns regarding water quality is the potential for increased levels of erosion and subsequent sediment delivery to streams from roads. A high level of BMP effectiveness can be expected during and after implementation of the proposed actions on roads within the State parcel. Any potential change in water quantity is likely to be unmeasurable or unable to deliver to surface waters.

   Due to the silvicultural prescription, the location of the harvest unit relative to stream channels, location of new road construction, and implementation of Forest Management BMP's within the project area there is a low risk of direct, secondary, or cumulative water quality impacts.

2. Forest stands within the project area are not a major influence on the hydrology and flow regimes of the streams draining the proposed timber sale area. Much of the forest in the project area have been affected by Douglas fir bark beetle and spruce budworm. The proposed harvest is not expected to substantially decrease the levels of canopy interception or evapotranspiration potential over that likely to occur in these watersheds under no action. The levels of harvest proposed are also well below those cumulative levels associated with detrimental increases in water yield. Due to these factors, no direct, secondary or cumulative impacts to water quantity are anticipated under the proposed action.

Water Quality & Quantity Mitigations:

- Limit equipment operations to periods when soils are dry (less than 20% soil moisture), frozen or snow covered (12 inches packed or 18 inches unconsolidated).
- Upgrade existing roads on State parcels to meet Forestry Best Management Practices.
- Compliance with Forestry Best Management Practices (BMP's), Streamside Management Zone (SMZ) laws and applicable DNRC Forest Management Administrative Rules.

FISHERIES:

Fisheries Existing Conditions: No perennial, class I streams are present in project area. Horn Creek is an intermittent, class II stream and could have surface connectivity to downstream receiving waters. An unnamed intermittent, class III drainage is located within the State parcels

and could have surface connectivity to Horn Creek. No streams are present within the harvest area. No known fishery exists in the project area.

No-Action: No direct or indirect impacts would occur to affected fish species or affected fisheries resources beyond those described in Fisheries Existing Conditions. Cumulative effects (other related past and present factors; other future, related actions; and any impacts described in Fisheries Existing Conditions) would continue to occur.

Action Alternative (see Fisheries table below):

Fisheries	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Sediment	**X**				**X**				**X**					
Flow Regimes	**X**				**X**				**X**					
Woody Debris	**X**				**X**				**X**					
Stream Shading	**X**				**X**				**X**					
Stream Temperature	**X**				**X**				**X**					
Connectivity	**X**				**X**				**X**					
Populations	**X**				**X**				**X**					
Action														
Sediment	**X**				**X**				**X**					
Flow Regimes	**X**				**X**				**X**					
Woody Debris	**X**				**X**				**X**					
Stream Shading	**X**				**X**				**X**					
Stream Temperature	**X**				**X**				**X**					
Connectivity	**X**				**X**				**X**					
Populations	**X**				**X**				**X**					

Comments:

No direct, secondary or cumulative effects to fisheries resources are expected to occur due to the implementation of this project.

Fisheries Mitigations:

- Compliance with Forestry Best Management Practices (BMP's), Streamside Management Zone (SMZ) laws and applicable DNRC Forest Management Administrative Rules.

WILDLIFE:

No-Action: Under the No-Action Alternative timber harvest and related activities would not occur and wildlife habitat would not be altered. No direct, indirect or cumulative effects to wildlife species would be expected.

Action Alternative (see Wildlife table below):

Wildlife	Impact												Can Impact be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Threatened and Endangered Species														
Grizzly bear *(Ursus arctos)* Habitat: Recovery areas, security from human activity		**X**				**X**				**X**			**Yes**	**1**
Canada lynx (*Felix lynx)* Habitat: Subalpine fir habitat types, dense sapling, old forest, deep snow zone	**X**				**X**				**X**					**2**
Wolverine *(Gulo gulo)*	**X**				**X**				**X**					
Sensitive Species														
Bald eagle *(Haliaeetus leucocephalus)* Habitat: Late-successional forest within 1 mile of open water	**X**				**X**				**X**					
Black-backed woodpecker *(Picoides arcticus)* Habitat: Mature to old burned or beetle-infested forest	**X**				**X**				**X**					
Black-tailed prairie dog (*Cynomys ludoviscianus*) Habitat: grasslands, short-grass prairie, sagebrush semi-desert	**X**				**X**				**X**					

Flammulated owl *(Otus flammeolus)* Habitat: Late-successional ponderosa pine and Douglas-fir forest	**X**				**X**				**X**					
Gray Wolf *(Canis lupus)* Habitat: Ample big game populations, security from human activities	**X**				**X**				**X**					
Harlequin duck *(Histrionicus histrionicus)* Habitat: White-water streams, boulder and cobble substrates	**X**				**X**				**X**					
Northern bog lemming *(Synaptomys borealis)* Habitat: Sphagnum meadows, bogs, fens with thick moss mats	**X**				**X**				**X**					
Mountain plover (*Charadrius montanus*) Habitat: short-grass prairie & prairie dog towns	**X**				**X**				**X**					
Peregrine falcon *(Falco peregrinus)* Habitat: Cliff features near open foraging areas and/or wetlands	**X**				**X**				**X**					
Pileated woodpecker *(Dryocopus pileatus)* Habitat: Late-successional ponderosa pine and larch-fir forest	**X**				**X**				**X**					

Greater Sage grouse (*Centrocercus urophasianus*) Habitat: sagebrush semi-desert	**X**				**X**				**X**					
Townsend's big-eared bat *(Plecotus townsendii)* Habitat: Caves, caverns, old mines	**X**				**X**				**X**					
Big Game Species														
Elk		**X**				**X**				**X**				**3**
Mule Deer		**X**				**X**				**X**				**3**
Black Bear		**X**				**X**				**X**				**3**

Comments:

1. The proposed project area lies outside of any grizzly bear recovery area. The nearest recovery area is the GYE grizzly bear recovery zone situated ~3 miles south of the project area. The proposed project area is located at the very southeastern edge of the Gravelly Range in a small patch of timber adjacent to grasslands and is within the Non-Recovery Occupied Habitat. Potential riparian habitat for grizzly bears is present within the project area and occasional Grizzly bear use of this area likely does occur. Human access levels are presently moderate due to the developed private lands. Approximately 0.8 miles of restricted existing road would require light reconstruction and 1250 feet of restricted new road would be constructed to minimum standard to access the proposed harvest unit. All new road would be physically closed at the completion of all proposed activities. Adverse direct, secondary and cumulative impacts to grizzly bears as a result of this project are expected to be minor.

2. The proposed project area is located in a small patch of timber, adjacent to grasslands, of non-suitable lynx habitat. Habitats high in coarse woody debris that is preferred for denning, and large acreages of dense conifer regeneration at high elevations that are preferred for foraging are not well represented in the project area. Lynx habitat is marginal due to naturally induced fragmentation, and the high level of interspersion of native grassland habitat and dry forest types. The predominant Douglas Fir forest type within the project area does not contain large amounts of high horizontal cover comprised of subalpine and spruce bows. Habitat in this area is likely best suited as travel habitat or matrix habitat that would facilitate movement, linkage, and provide habitat for secondary prey species such as red squirrels. Preferred lynx habitat is marginal within the proposed project area due to the lack of highly desirable habitat conditions for lynx and their primary prey, snowshoe hares. Adverse direct, indirect or cumulative impacts to lynx as a result of this project are not expected.

3. The project area falls within the distribution of elk, white-tailed deer, mule deer and black bear. ~0.2 miles of minimum standard restricted new road would be constructed and the duration of logging and road activities would be ~3 months. Hiding and thermal cover would be affected on approximately 54 acres, and logging disturbance could disturb and displace elk, deer and black bear, however, displacement would likely be short term. Low to moderate quality thermal cover/snow intercept is present in most of the project area due to the low to moderate density of large, mature trees. As the State does not have legal access to the parcel, access to the public is limited to adjacent landowners and to those they may grant access to. No appreciable changes in long-term use of the project area by any of the species would be expected. Due to the scale and short duration of the proposed activities and implementation of mitigations measures, minor adverse direct, indirect, and cumulative effects to elk, deer and black bear would be anticipated.

Wildlife Mitigations:

- A DNRC biologist would be consulted if a threatened or endangered species is encountered to determine if additional mitigations that are consistent with the administrative rules for managing threatened and endangered species (ARM 36.11.428 through 36.11.435) are needed.
- Proposed project activities would not occur from March 15 - June 15.
- Prohibit contractors and purchasers conducting contract operations from carrying firearms while on duty.
- Contractors would adhere to food storage and sanitation requirements.
- Design harvest units such that no point within the unit would be more than 600 feet from visual screening or topographic breaks that would hide a grizzly bear.
- Snags, snag recruits, and coarse woody debris would be managed according to ARM 36.11.411 through 36.11.414. Retain at least one large down log >15 inches dbh (or largest size available) and >20 feet long per acre where available. Sub-merchantable and non-merchantable trees and shrubs would be protected and retained for visual screening.
- All new roads and skid trails would be physically closed within the project area on the State parcel at the completion of proposed activities. Existing roads on State lands would be classified as restricted and closed to motorized traffic.
- Public access would be restricted for the duration of the project.

AIR QUALITY:

Air Quality	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Smoke	**X**				**X**				**X**					
Dust	**X**				**X**				**X**					
Action														
Smoke		**X**				**X**				**X**			**Yes**	**1**
Dust		**X**				**X**				**X**			**Yes**	**2**

Comments:

1. All burning would be done in accordance to the Montana Idaho Airshed Group guidelines.

2. Dust may be created from logging operations and log hauling while on native surface roads. Due to minor amount of dust particulate, remoteness and short duration of project no mitigations for dust would be implemented.

Air Quality Mitigations:

- To minimize cumulative effects during burning operations, burning would be done in compliance with the Montana Airshed Group, reporting regulations and any burning restrictions imposed in Airshed 7.

ARCHAEOLOGICAL SITES / AESTHETICS / DEMANDS ON ENVIRONMENTAL RESOURCES:

Will Alternative result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Historical or Archaeological Sites	**X**				**X**				**X**					
Aesthetics	**X**				**X**				**X**					
Demands on Environmental Resources of Land, Water, or Energy	**X**				**X**				**X**					
Action														
Historical or Archaeological Sites	**X**				**X**				**X**					**1**
Aesthetics		**X**				**X**				**X**				**2**
Demands on Environmental Resources of Land, Water, or Energy	**X**				**X**				**X**					

Comments:

1. Scoping letters were sent to those Tribes that requested to be notified of DNRC timber sales. No response was returned that identified a specific cultural resource issue. A Class I (literature review) level review was conducted by the DNRC staff archaeologist for the area of potential effect (APE). This entailed inspection of project maps, DNRC's sites/site leads database, land use records, General Land Office Survey Plats, and control cards. The Class I search results revealed that no cultural or paleontological resources have been identified in the APE, but it should be noted that Class III level inventory work has not been conducted there to date.

   Because the topographic is relatively steep and dry suggesting a low to moderate likelihood of the presence of cultural or paleontological resources, proposed timber harvest activities are expected to have No Effect to Antiquities. No additional

archaeological investigative work will be conducted in response to this proposed timber sale.

2. The proposed timber sale is visible from a small segment of Horn Creek County Road, Hwy 87 and a few residences due west of the project. Approximately 12% of the combined acreage of the two State parcels would change from their current condition. The harvest unit would be much more open post-harvest due to seed tree and shelterwood harvest prescriptions. The State parcels can be accessed from Horn Creek Road to the north, otherwise they are surrounded by private property making public access and recreation somewhat restrictive in the area. The level of change to the landscape is expected to be low and not dominate the view to the casual observer. Regeneration would be expected in very open areas of the proposed harvest area and the existing regeneration and leave trees would continue to grow, thus reducing the openness of the stand over time.

Mitigations:

- If previously unknown cultural or paleontological materials are identified during project related activities, all work will cease until a professional assessment of such resources can be made.
- The timber harvest would utilize selective harvest methods and "feathering" of hard lines to help soften visual impacts.

OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA:

- None.

Impacts on the Human Population

Evaluation of the impacts on the proposed action including **direct, secondary, and cumulative** impacts on the Human Population.

Will Alternative result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Health and Human Safety	**X**				**X**				**X**					
Industrial, Commercial and Agricultural Activities and Production	**X**				**X**				**X**					
Quantity and Distribution of Employment	**X**				**X**				**X**					
Local Tax Base and Tax Revenues	**X**				**X**				**X**					
Demand for Government Services	**X**				**X**				**X**					

Will Alternative result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Access To and Quality of Recreational and Wilderness Activities	**X**				**X**				**X**					
Density and Distribution of population and housing	**X**				**X**				**X**					
Social Structures and Mores	**X**				**X**				**X**					
Cultural Uniqueness and Diversity														
Action														
Health and Human Safety	**X**				**X**				**X**					
Industrial, Commercial and Agricultural Activities and Production	**X**				**X**				**X**					
Quantity and Distribution of Employment	**X**				**X**				**X**					
Local Tax Base and Tax Revenues	**X**				**X**				**X**					
Demand for Government Services	**X**				**X**				**X**					
Access To and Quality of Recreational and Wilderness Activities	**X**				**X**				**X**					
Density and Distribution of population and housing	**X**				**X**				**X**					
Social Structures and Mores	**X**				**X**				**X**					
Cultural Uniqueness and Diversity	**X**				**X**				**X**					

Comments: N/A

Mitigations: N/A

Locally Adopted Environmental Plans and Goals:

- NONE

Other Appropriate Social and Economic Circumstances:

No Action: The No Action alternative would not generate any return to the trust at this time.

Action: The timber harvest would generate additional revenue for the Common Schools Trust. The estimated return to the trust for the proposed harvest is $19,500.00 based on an estimated harvest of 250 thousand board feet (1625 tons) and an overall stumpage value of $10.90 per ton. The estimated return to Forest Improvement for the proposed harvest is $1,787.50 based on an estimated harvest of 1625 tons and an FI fee of $1.10 per ton. Costs, revenues, and estimates of return are estimates intended for relative comparison of alternatives, they are not intended to be used as absolute estimates of return.

References

DNRC 1996. State forest land management plan: final environmental impact statement (and appendixes). Montana Department of Natural Resources and Conservation, Forest Management Bureau, Missoula, Montana.

DNRC. 2010. Montana Department of Natural Resources and Conservation Forested State Trust Lands Habitat Conservation Plan: Final EIS, Volume II, Forest Management Bureau, Missoula, Montana.

Does the proposed action involve potential risks or adverse effects that are uncertain but extremely harmful if they were to occur?
No

Does the proposed action have impacts that are individually minor, but cumulatively significant or potentially significant?
No

Environmental Assessment Checklist Prepared By:

Name: Chuck Barone
Title: Bozeman Unit Forester
Date: 01/04/2018

Finding

Alternative Selected

Action Alternative: A limited opportunity to access landlocked State land to harvest ~250 MBF of overstocked Douglas-fir sawtimber with insect infestations from 54 acres would occur. The proposed project would construct ~1250 feet of minimum standard new restricted road and reconstruct ~4300 feet of existing road to access the harvest area. Group shelterwood and seed tree treatments, utilizing ground based systems, would be utilized in the Douglas-fir stands. Aspen stands would have all conifer sawtimber removed out to 75 feet from the aspen clone.

The remaining sub-merchantable conifer within the aspen stands would be felled and lopped after the timber harvest if funding and personnel are available. Treatments would generate the revenue to the trust and capture value from dead and dying timber while improving the health, vigor and productivity of the forest stands. At project closure, skid trails and new road on the State land would be physically closed.

With the following conditions:

1) Compliance with Forestry Best Management Practices (BMP's), Streamside Management Zone (SMZ) laws, applicable DNRC Forest Management Administrative Rules and applicable Montana DNRC Forested State Trust Lands Habitat Conservation Plan (HCP).
2) Limit equipment operations to periods when soils are dry (less than 20% soil moisture), frozen or snow covered (12 inches packed or 18 inches unconsolidated) to minimize soil compaction, rutting, vegetative disturbance and maintain drainage features. Control erosion by installing adequate drainage on roads and skid trails.
3) The Forest Officer shall approve a plan for felling, yarding and landing location in each harvest unit prior to the start of operations in the unit. The locations and spacing of skid trails and landings shall be designated and approved by the Forest Officer prior to operations and skid trails will not be spaced less than 60 feet. Retain all fine litter as feasible and 5-10 tons/acre of large woody debris >3" diameter. Minimize soil disturbance by general skid trail planning and limit sustained tractor skidding to slopes ≤45%. Limit scarification to 30-40% of the harvest area. Slash would be left in the harvest units where feasible, and distributed on skid trails upon completion of use, for nutrient cycling, to control erosion and to provide shade and protection for seedlings.
4) Install adequate road drainage to control erosion concurrent with harvest activities. Provide effective sediment filtration along drainage features near crossing sites. Major skid trails on State lands would be closed with slash and debris and/or barriers, and adequate drainage provided.
5) All road and logging equipment would be power washed and inspected prior to being brought on site. Sale area would be monitored for weeds following harvest and a treatment plan would be developed should noxious weeds occur.
6) At sale closure, grass seed roads, skid trails (where needed) and landings with an appropriate seed mixture.
7) One snag and one snag recruit per acre, of the largest diameter class, would be retained where available and applicable. Cull live trees and cull snags would be retained where applicable.
8) Sub-merchantable and non-merchantable trees and shrubs would be protected and retained where applicable. Retain patches of advanced regeneration of shade-tolerant trees (grand fir, subalpine fir, and spruce), as a component of commercial harvest prescriptions. Cover of the retained patches should not exceed 10 percent of the stand area.
9) Emphasize the retention of downed logs of 15-inch diameter or larger where available.
10) On blowdown salvage projects, 1 percent of the blowdown area would be left unsalvaged. The material would preferably be retained in a nonlinear patch or patches.

11) Retain live, healthy older trees and stand attributes suitable for old growth development where available and applicable.

12) Contact DNRC wildlife biologist should any threatened or endangered species be encountered within the proposed project area.

13) Human or pet food, livestock food, garbage, and other attractants would be stored in a bear resistant manner. Burnable attractants (such as food leftovers or bacon grease) would not be buried, discarded, or burned in an open campfire. Written brochures that describe risks and concerns regarding humans living and working in bear habitat would be provided to contractors and their employees conducting forest management activities prior to start of operations.

14) Clearcut and seed tree cutting units would be designed to provide topographic breaks in view or to retain visual screening for bears by ensuring that vegetation or topographic breaks be no greater than 600 feet in at least one direction from any point in the unit.

15) Forest management activities would be prohibited during the spring period of April 1 through June 15 in identified spring grizzly bear habitat.

16) DNRC employees and contractors and their employees would be prohibited from carrying firearms while on duty, unless the person is specifically authorized to carry a firearm under DNRC Policy 3-0621.

Significance of Potential Impacts

I have determined that none of the anticipated environmental impacts outlined in the EA are significant according to the criteria outlined in *ARM 36.2.524.* I find that no impacts are regarded as severe, enduring, geographically widespread, or frequent. Further, I find that the quantity and quality of various resources, including any that may be considered unique or fragile, will not be adversely affected to a significant degree. I find no precedent for future actions that would cause significant impacts, and I find no conflict with local, State, or Federal laws, requirements, or formal plans. In summary, I find that the identified adverse impacts will be avoided, controlled, or mitigated by the design of the project to the extent that the impacts are not significant.

Need for Further Environmental Analysis

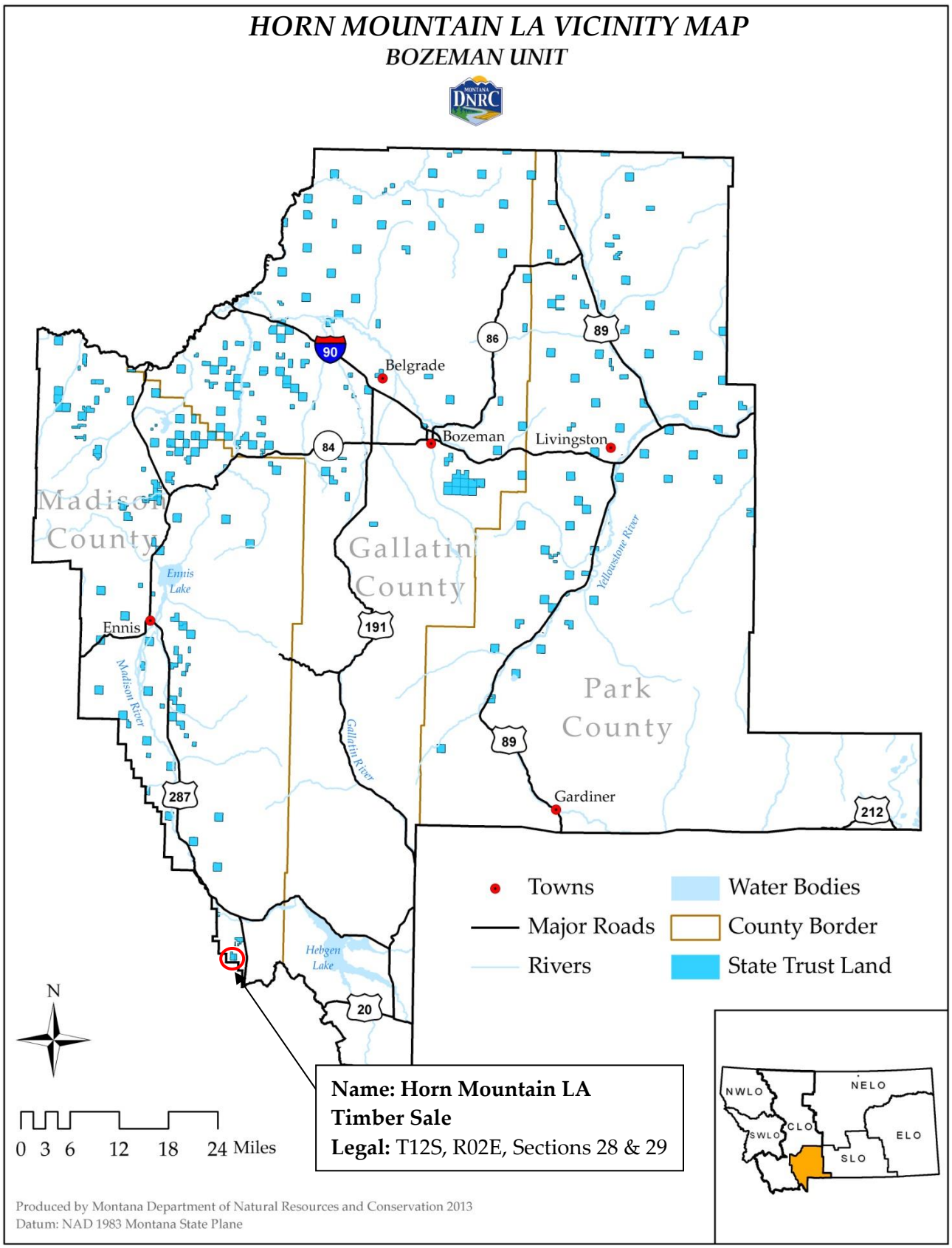
[ ]	EIS	[ ]	More Detailed EA	[X]	No Further Analysis

Environmental Assessment Checklist Approved By:

Name: Craig Campbell
Title: Bozeman Unit Manager
Date: January 4, 2018
Signature: /s/ Craig Campbell

Attachment A - Maps

A-1: Timber Sale Vicinity Map



A-2: Timber Sale Harvest Units